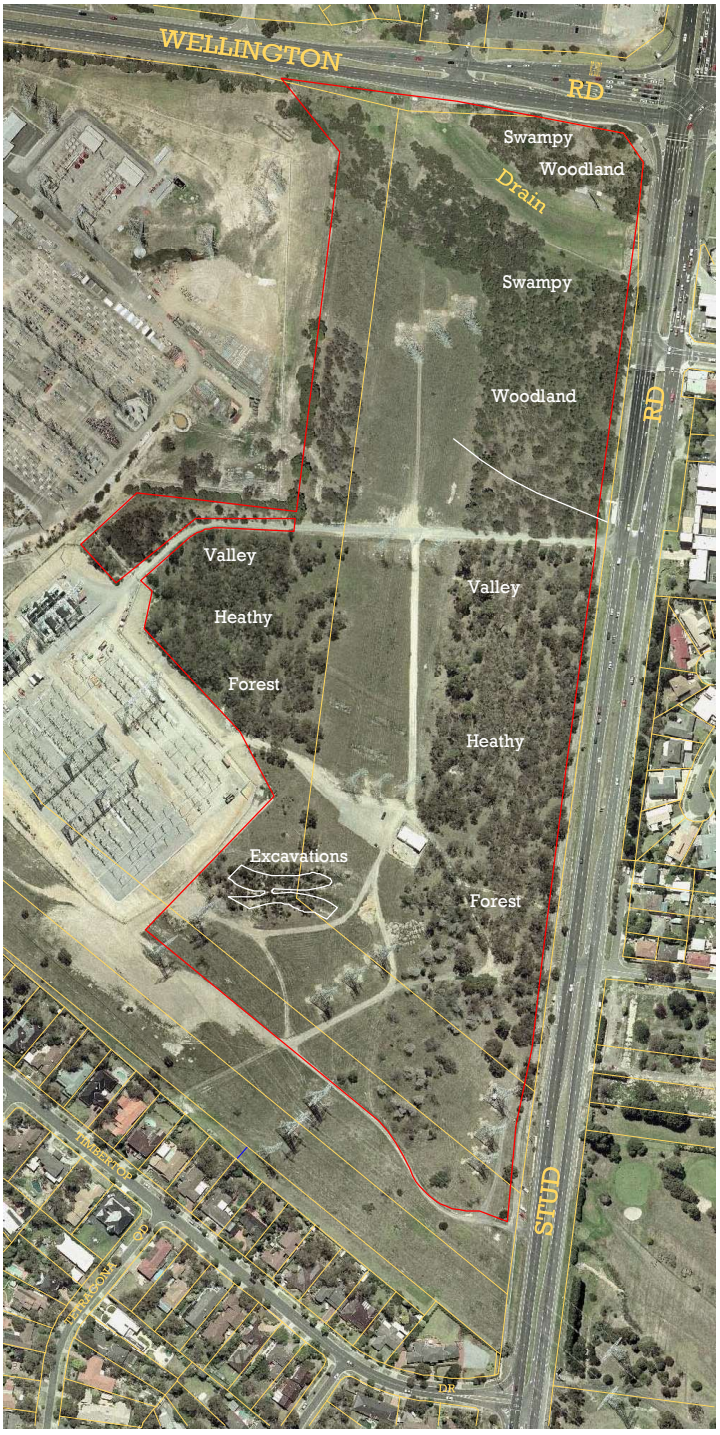
Site 72. Rowville Electricity Terminal Station

Sections of a major electricity infrastructure property that contain regrowth of native vegetation. Melway ref. 81 H4.

Site Significance Level: *State*

- Includes 8 ha of regionally endangered vegetation (Swampy Woodland and Valley Heathy Forest), in addition to 6 ha that is treeless and regularly slashed (beneath transmission lines) but which retains most of the species in the treed areas of Valley Heathy Forest;
- Fifteen indigenous plant species are rare or threatened in Knox, nine of which are rare or threatened in the whole Melbourne area. Some of these are abundant. One species (*Eryngium vesiculosum*) is unique in Knox.



Aerial photograph taken February 2007

Boundaries

This site is outlined in red on the aerial photograph on the previous page. The boundaries almost wholly follow fences and the edges of roads and tracks. Note that the fence along Stud Rd (which is a site boundary) is well inside the property boundary. Since the first edition of this report, the site area has been reduced by 1·4 ha to account for construction of the southern switchyard in what was formerly Valley Heathy Forest.

Land use & tenure: Public land managed by SP AusNet, principally for provision of electricity services.

Site description

This 17·1 ha site includes:

- An east-west ridgetop, running through the excavations marked on the aerial photograph;
- The northern slopes of the ridge, down to a drain (formerly a creek) in the site's northeastern corner; and
- A small area of the ridge's southern flank.

The elevation range is from just under 50m to just over 70m and the gradient at mid-slope is approximately 8%.

The ridge has formed from the Humevale formation of Lower Devonian sedimentary rocks, which decomposes to form stony clay subsoil and shallow, poorly draining topsoil of light grey loam. At the foot of the ridge, within the area marked as Swampy Woodland on the aerial photograph, the soil is formed from silt washed down the hill and from further up the valley.

The dearth of large, old trees and the agricultural history of this district indicate that this site was once cleared and grazed. This ridge was also used as a military camp during the Second World War. The diversity of native vegetation has suffered from this history (particularly in the case of shrubs) and there is a legacy of weeds. However, there remains at least eighty-two indigenous plant species including some that are quite rare in the Melbourne area.

The aerial photograph is marked to show treed areas of the regionally endangered Swampy Woodland and the endangered Valley Heathy Forest. The majority of the site's rare plants are in the Swampy Woodland south of the drain. The trees of the Valley Heathy Forest have low stature for their age, indicating that the soil is rather infertile.

There is also a high percentage cover of low-growing indigenous plants (especially Kangaroo-grass, *Themeda triandra*) in the slashed strips beneath the high-voltage transmission lines, whose pylons can be seen on the photograph.

The excavations marked on the aerial photograph are on the ridge top but have the most consistently wet soil in the site. This has enabled wetland vegetation to establish in a part of the landscape where they could not occur in nature. The colonisation of the excavations by indigenous plants is remarkable, including at least fifteen species that have presumably arrived by wind or on the feathers or legs of waterbirds. Some of these species are rare or threatened, either in Knox or throughout the Melbourne area.

Relationship to other land

Many native birds, bats and insects would be likely to move between this site, Starlight Reserve (Site 73), the Waverley Golf Club (Site 77, with the pink outline in the southeast of the aerial photograph), the Dandenong Creek habitat corridor (e.g. Site 74 and Site 75) and the Lysterfield Hills.

Bioregion: Gippsland Plain

Habitat types

Wetland (EVC 74, listed as regionally Endangered, but in this case the depression is artificial), comprising the excavations on the ridge top. Estimated to occupy approximately 0·14 ha, all in fair ecological condition (rating C). 15 indigenous plant species were recorded.

Woody vegetation: None, although *Leptospermum continentale* grows on the edge.

Ferns: There is one patch of *Hypolepis glandulifera*.

Semi-aquatic flora: Dominated by *Centella cordifolia* and *Isolepis fluitans*. Other species include *Alisma plantago-aquatica, Eleocharis acuta*, *Isolepis fluviatilis,* five indigenous *Juncus* species, *Persicaria decipiens* and *Schoenus apogon*.

Swampy Woodland (EVC 937, **regionally Endangered**): Estimated as 2·4 ha in area, comprising 1·9 ha in fair ecological condition (rating C) and 0·5 ha in poor ecological condition (rating D). 43 indigenous plant species were recorded.

Dominant canopy trees: *Eucalyptus ovata* and far fewer *E. cephalocarpa*.

Dominant lower trees: *Acacia melanoxylon*.

Shrubs: Low in diversity and low to moderate in density, leaving clear visibility for typically 100 m. The species with substantial numbers are *Leptospermum continentale, Leptospermum scoparium* and *Ozothamnus ferrugineus*. The only other species is *Solanum laciniatum*.

Vines: Absent.

Ferns: Very scarce - a very small amount of *Pteridium esculentum*.

Ground flora: Densely grassy. The dominant grasses are *Microlaena stipoides* and the weed *Anthoxanthum odoratum*. Other species that are dominant in patches are *Juncus* species, *Schoenus tesquorum* or the weeds *Paspalum dilatatum, Rubus discolor* or *Watsonia meriana*. Other abundant species are *Lomandra longifolia* and *Austrostipa rudis* subsp. *rudis*. *Epilobium hirtigerum* is moderately common and serves as a good ecological indicator.

Valley Heathy Forest (EVC 127, **Endangered**): Estimated as 5·1 ha, all in fair ecological condition (rating C). 45 indigenous plant species were recorded.

Canopy trees: Dominated by *Eucalyptus radiata* on the upper slopes and *E. cephalocarpa* on the lower slopes, closer to the Swampy Woodland. *E. goniocalyx* is also present.

Lower trees: Mostly sparse. Dominated by *Acacia mearnsii* and *Acacia melanoxylon*. *Allocasuarina littoralis* and *Exocarpos cupressiformis* are also present.

Shrubs: Severely depleted by past clearing, leaving only sparse indigenous shrubs. The more abundant species are *Bursaria spinosa* and *Leptospermum continentale*. The only others are *Acacia paradoxa, Cassinia arcuata, Kunzea ericoides* and *Ozothamnus ferrugineus*.

Vines: Uncharacteristically absent.

Ferns: There is a small amount of *Pteridium esculentum*.

Ground flora: Dominated by *Microlaena stipoides* and *Austrostipa rudis* subsp. *rudis*, also with patches of dense *Themeda triandra.* Other abundant species are *Arthropodium strictum*, *Rytidosperma* species and *Tricoryne elatior*. Less abundant species that are good ecological indicators include *Dianella longifolia, Dichondra repens*, *Gonocarpus tetragynus, Lepidosperma gunnii, Leptorhynchos tenuifolius, Lomandra filiformis* and *Veronica gracilis*.

Regularly slashed ground flora of Valley Heathy Forest beneath the transmission lines. Estimated as 6·2 ha, all in fair ecological condition (rating C). 35 indigenous plant species were recorded.

Shrubs: There are scattered, stunted specimens of *Acacia paradoxa, Bursaria spinosa, Cassinia arcuata, Leptospermum continentale, Kunzea ericoides* and *Ozothamnus ferrugineus*.

Vines: Absent.

Ferns: There is a small amount of *Pteridium esculentum*.

Ground flora: Dominated by *Themeda triandra, Microlaena stipoides* and *Austrostipa rudis* subsp. *rudis. Drosera peltata* subsp. *peltata* is abundant in places, despite being undetected in the rest of the site. Most of the ground flora species in the unslashed Valley Heathy Forest are also present in the slashed strip.

Plant species

The following plant species were observed in the years indicated, the 2002-3 entries being the author's. The reliability of some of the 1999 data is questionable. The column headed 'Risk' indicates the indigenous species' risk of extinction in Knox as follows: 'C'=Critically Endangered; 'E'=Endangered; and 'V'=Vulnerable. In addition, the species with names in bold are rare throughout the Melbourne region.

Risk	Indigenous Species	Year
V	*Acacia mearnsii*	2002
V	*Acacia melanoxylon*	2002
	Acacia paradoxa	2002
V	*Acacia verticillata*	1999
	Acaena novae-zelandiae	2002
	Alisma plantago-aquatica	2002
V	*Allocasuarina littoralis*	2002
C	***Allocasuarina paludosa*** (unconfirmed)	1999
C	***Amphibromus archeri***	2002
	Arthropodium strictum	2002
C	*Asperula conferta*	1999
C	***Austrofestuca hookeriana***	1999
	Austrostipa rudis subsp. *rudis*	2002
C	***Baumea arthrophylla***	2002
	Burchardia umbellata	2002
	Bursaria spinosa	2002

Risk	Indigenous Species	Year
	Carex appressa	1999
	Carex breviculmis	1999
	Carex inversa	2002
	Cassinia arcuata	2002
E	*Centella cordifolia*	2002
	Deyeuxia quadriseta	2002
	Dianella admixta	2002
V	*Dianella longifolia* s.l.	2002
	Dichondra repens	2002
E	*Drosera peltata* subsp. *peltata*	2002
C	***Drosera pygmaea***	1999
V	*Eleocharis acuta*	2002
C	***Eleocharis gracilis***	2002
	Epilobium hirtigerum	2002
C	***Eryngium vesiculosum***	1999
V	*Eucalyptus cephalocarpa*	2002

Risk	Indigenous Species	Year
	Eucalyptus goniocalyx	2002
V	*Eucalyptus ovata*	2002
E	*Eucalyptus radiata*	2002
C	***Eucalyptus viminalis* subsp. *pryoriana***	1999
E	***Euchiton sphaericus***	1999
V	*Exocarpos cupressiformis*	2002
	Gahnia radula	1999
	Gonocarpus tetragynus	2002
C	*Gratiola peruviana*	1999
C	*Haloragis heterophylla*	2003
V	*Helichrysum luteoalbum*	1999
V	*Hemarthria uncinata*	2002
E	*Hydrocotyle laxiflora*	1999
E	*Hypericum gramineum*	2002
C	***Hypolepis glandulifera***	2002
E	*Hypoxis* sp.	1999
E	*Imperata cylindrica*	1999
C	*Isolepis fluitans*	2002
V	*Isolepis inundata*	1999
C	***Isotoma fluviatilis***	2002
	Juncus amabilis	2002
	Juncus bufonius	2002
	Juncus gregiflorus	2002
	Juncus pallidus	2002
	Juncus sarophorus	2002
	Kunzea ericoides spp. agg.	2002
	Lachnagrostis filiformis	2002
	Lepidosperma gunnii	2002
V	*Leptorhynchos tenuifolius*	2002
	Leptospermum continentale	2002
E	*Leptospermum scoparium*	2002
	Lomandra filiformis subsp. *coriacea*	2002
	Lomandra longifolia	2002
V	*Lythrum hyssopifolia*	2002
E	*Melaleuca ericifolia*	1999
	Microlaena stipoides	2002
	Microtis parviflora	1999
V	*Opercularia varia*	2002
C	***Ottelia ovalifolia***	1999
	Oxalis exilis/perennans	2002
E	*Ozothamnus ferrugineus*	2002
	Persicaria decipiens	2002
V	*Plantago varia*	1999
E	*Poa labillardierei* var. *labillardierei*	1999
	Poa morrisii	1999
E	*Poa tenera*	2002
	Poranthera microphylla	2002
	Pteridium esculentum	2002
E	*Rubus parvifolius*	1999
	Rytidosperma geniculatum	2002
	Rytidosperma racemosum	2002
E	*Rytidosperma semiannulare*	2003
	Rytidosperma setaceum	2002
	Rytidosperma tenuius	2002
	Schoenus apogon	2002
C	***Schoenus tesquorum***	2002
V	*Solanum laciniatum*	2002
V	*Solenogyne dominii*	1999
V	*Thelymitra peniculata*	2002
	Themeda triandra	2002
	Tricoryne elatior	2002
V	*Veronica gracilis*	2002
E	*Viola hederacea*	1999
E	*Wahlenbergia gracilis*	2002

Introduced Species

Acacia longifolia subsp. *longifolia*	*Dactylis glomerata*	*Phalaris minor*
Agrostis capillaris	*Ehrharta erecta*	*Pittosporum undulatum*
Aira cupaniana	*Ehrharta longiflora*	*Plantago lanceolata*
Aira elegantissima	*Galium aparine*	*Poa annua*
Aira præcox	*Gamochaeta purpurea*	*Prunella vulgaris*
Allium triquetrum	*Gladiolus undulatus*	*Ranunculus repens*
Anagallis arvensis	*Holcus lanatus*	*Romulea rosea*
Anthoxanthum odoratum	*Hypochoeris glabra*	*Rosa rubiginosa*
Briza maxima	*Hypochoeris radicata*	*Rubus anglocandicans*
Bromus catharticus	*Isolepis levynsiana*	*Rumex crispus*
Centaurium erythraea	*Juncus articulatus*	*Solanum nigrum*
Cerastium glomeratum s.l.	*Leontodon taraxacoides*	*Sonchus oleraceus*
Cicendia filiformis	*Lonicera japonica*	*Sporobolus africanus*
Cirsium vulgare	*Lotus subbiflorus*	*Stenotaphrum secundatum*
Conyza bonariensis	*Lythrum junceum*	*Taraxacum officinale* spp. agg.
Coprosma repens	*Melaleuca armillaris*	*Trifolium repens*
Cortaderia selloana	*Paspalum dilatatum*	*Ulex europaeus*
Crataegus monogyna	*Paspalum distichum*	*Vulpia bromoides*
Cynodon dactylon	*Pennisetum clandestinum*	*Watsonia meriana* var. *bulbillifera*
Cyperus eragrostis	*Phalaris aquatica*	

Notes concerning some of the locally threatened plant species

Amphibromus archeri (Pointed Swamp Wallaby-grass). A solitary plant was found in 2002, in the Swampy Woodland, roughly 30 m from the Stud Rd fence, opposite the Bergins Rd intersection.

Austrofestuca hookeriana (Hooker Fescue). Reported to have been recorded by botanist, Mr G.W. Carr, in 1999.

Baumea arthrophylla (Fine Twig-rush). Two patches were found in 2002.

Drosera peltata subsp. *peltata* (Pale Sundew). Abundant in the slashed strips beneath the transmission lines.
Eleocharis gracilis (Slender Spike-rush). At least two patches of >1 m² were found in 2002.
Eryngium vesiculosum (Prickfoot). Reported to have been recorded by botanist, Mr G.W. Carr, in 1999.
Haloragis heterophylla (Varied Raspwort). One extensive patch was found in 2003 next to the Stud Rd fence.
Hypolepis glandulifera (Downy Ground-fern). A solitary plant was found in the excavations in 2002.
Imperata cylindrica (Blady Grass). Reported by Jameson and Rishworth in a 2002 management strategy for the site.
Isolepis fluitans (Floating Club-rush). Abundant in the excavations and also present in the Swampy Woodland.
Isotoma fluviatilis subsp. *australis* (Swamp Isotome). 2 m² was found in the excavations in 2002.
Microtis parviflora (Slender Onion-orchid). Reported by Jameson and Rishworth in a 2002 management strategy for the site.
Ottelia ovalifolia (Swamp Lily). As above.
Rytidosperma geniculatum (Kneed Wallaby-grass). Scattered patches were found on the ridge top in 2002.
Schoenus tesquorum (Soft Bog-rush). Over 1,000 plants, dominant in parts of the Swampy Woodland.

Fauna of special significance

None detected.

Fauna habitat features

- The grassy ground flora provide suitable habitat for butterfly caterpillars and other invertebrates;
- It is possible that butterflies congregate on the ridge top (which is what many butterflies do on hilltops);
- The trees feed birds, possums and insects, and the insects feed more birds and probably bats.

Significance ratings

The following is an assessment of the site's significance against the Department of Sustainability & Environment's standard criteria (Amos 2004).

Endangered Vegetation Types

Valley Heathy Forest and Swampy Woodland are endangered. It follows from Appendix 3 of *Victoria's Native Vegetation Management - a Framework for Action* (NRE 2002a) that native vegetation of these types is necessarily of at least High conservation significance. It follows from criterion 3.2.3 of Amos (2004) that the site is of **State** significance.

Rare or Threatened Plants

Many of the locally threatened plant species listed above have viable populations, thereby meeting criterion 3.1.5 for a site of **Local** significance.

Threats

- Invasion by environmental weeds:
  - Very serious: Sweet Vernal-grass (*Anthoxanthum odoratum*), Gorse (*Ulex europaeus*), Bulbil Watsonia (*Watsonia meriana*);
  - Serious: Brown-top Bent (*Agrostis capillaris*), Large Quaking-grass (*Briza maxima*), Jointed Rush (*Juncus articulatus*), Water Couch (*Paspalum distichum*), Blackberry (*Rubus discolor*);
  - Moderate: Sallow Wattle (*Acacia longifolia*), Angled Onion (*Allium triquetrum*), Hawthorn (*Crataegus monogyna*), Cocksfoot (*Dactylis glomerata*), Panic Veldt-grass (*Ehrharta erecta*), Cleavers (*Galium aparine*), Wild Gladiolus (*Gladiolus undulatus*), Yorkshire Fog (*Holcus lanatus*), Cat's Ear (*Hypochoeris radicata*), Japanese Honeysuckle (*Lonicera japonica*), Paspalum (*Paspalum dilatatum*), Kikuyu Grass (*Pennisetum clandestinum*), Toowoomba Canary-grass (*Phalaris aquatica*), Sweet Pittosporum (*Pittosporum undulatum*), Ribwort (*Plantago lanceolata*), Creeping Buttercup (*Ranunculus repens*), Common Onion-grass (*Romulea rosea*), Squirrel-tail Fescue (*Vulpia bromoides*);
- Loss or decline of plant species whose populations are so small that they are vulnerable to inbreeding, poor reproductive success or misadventure;
- Climate change and the effects of drought, particularly on wetland and Swampy Woodland vegetation.

Management issues

- This site's native vegetation is being professionally managed under contract to SP AusNet, guided by the 2002 report, *'Habitat and Pest Plant Management Strategy 2002-2007 – Rowville Terminal Station'* by G. Jameson and R. Rushworth;
- Slashing beneath the transmission lines is not compromising the conservation values of the affected vegetation;

- A small part of the rare wetland species that are presently confined to the ridgetop excavations should be propagated or transplanted to establish populations in the wettest parts of the Swampy Woodland, to provide greater security for the species.

Administration matters

- This site is worthy of inclusion within the proposed Environmental Significance Overlay, ESO2, because of the matters discussed under the heading, 'Significance ratings';
- Parts of the site are included under the existing Vegetation Protection Overlay Schedule 1 of the Knox Planning Scheme, based on the description of Site 29 of the report by Water Ecoscience (1998). The site described here is larger to encompass all the significant native vegetation, including areas that are periodically slashed;
- The Planning Scheme zoning is Special Use Zone 3 (SUZ3).

Information sources used in this assessment

- A site survey by Dr Lorimer for 3½ hours on 7th November 2002 using this study's standard approach described in Section 2.4 of Vol.1. This included:
  - Compilation of lists of indigenous and introduced plant species in each of four parts of the site;
  - Description of the structural and floristic composition of each type of native vegetation;
  - Incidental fauna observations; and
  - Checks for fauna habitat, ecological threats and management issues;
- A brief re-inspection of the Swampy Woodland by Dr Lorimer from the fenceline on 30th November 2003 to seek any cryptic species missed the previous year and check for additional Pointed Swamp Wallaby-grass (*Amphibromus archeri*);
- The 2002 report, *'Habitat and Pest Plant Management Strategy 2002-2007 – Rowville Terminal Station'* by G. Jameson and R. Rushworth for SPI PowerNet (noting that there are inaccuracies in the botanical content);
- Quadrat data from 1999 in the Department of Sustainability & Environment's *'Flora Information System'*.
- Verbal information about how the site's vegetation is managed, from Mr Malcolm Warren of SP AusNet;
- Aerial photography from February 2001, April 2003 and February 2007;
- Satellite imagery of the district;
- The Department of Sustainability & Environment's BioMaps of the area;
- Maps of geology and topography produced by agencies of the Victorian government.

Acknowledgment

Thanks to SP AusNet for permission to survey the property, and to Mr Malcolm Warren of SP AusNet for his assistance and attendance during the site inspection.